(which certainly does not live on cocoa nuts there, as there are none). In rough weather landing is almost impossible on the coast of the Little Andaman, and even in fine weather there are heavy ground-swells and tide-rips. On the north coast large isolated reefs and ledges exist, which make navigation dangerous. With regard to the aborgines of the island, Mr. Portman is of opinion that the whole of the Little Andaman Island is peopled by one race, calling themselves Öngés. These people are subdivided into tribes, who adhere more or less to their own villages, and who quarrel and fight with each other considerably. They appear healthy; their principal diseases being chest complaints, colds, fever, and itch. In physique they compare favourably with the inhabitants of the Great Andaman. Their manners and customs differ somewhat from those of the Great Andaman people, the principal differences being the following:—Instead of small lean-to's, they build large circular huts, some measuring as much as 35 feet in height, and 60 feet in diameter. In these huts the various families sleep on charpoys of wood and cane matting, raised from 6 to 18 inches off the ground, and about 2 feet 6 inches square. Their habits are more cleanly, particularly as regards their huts, and the manner of preparing their food, which is invariably cooked. They cook, dry, and store in baskets, a small fish like a sprat, and this, with the boiled seed of the mangrove, seems to be their principal food, which they supplement with what they can. Their canoes, utensils, ornaments, and bows, are different from those of other Andamanese, and the women wear a tassel of yellow fibre in place of the leaf. They do not smear their bodies over with red ochre, or tattoo themselves, nor do the women keep their heads clean shaved. They are by no means expert in the use of a canoe in rough water, and do not harpoon turtle or dugong, though very fond of the former. They have no religion of any kind, and Mr. Portman learnt nothing of their traditions or superstitions, from which they seem even more free than their neighbours.

Mr. C. M. Woodford has recently returned from a two years' visit to the Solomon Islands, with extensive collections of mammals, birds, reptiles, Lepidoptera, &c. Nearly six months were spent on Guadalcanar, an island the interior of which has never been previously explored. Ascents were made of several rivers, the furthest point reached being about fifteen miles from the coast; but the hostility of the bushmen prevented the ascent of Mount Lammas.

OUR ELECTRICAL COLUMN.

Mr. Willard Case, of Auburn, N.Y., U.S.A., whose extremely interesting paper on a thermic voltaic cell was read before the Royal Society on May 6, 1886, is systematically pursuing his studies to obtain electric energy direct from carbon without passing through the intermediate stage of heat. A paper read on January 10, 1888, in New York, narrates his latest experiments. Jablochkoff tried to do it by immersing plates of carbon and iron in fused nitre. Mr. Case has been using chlorate of potassium and chlorine peroxide (perchloric acid), and with the latter has obtained an E.M.F. with certain forms of carbon varying from 0·3 to 1·24 volt.

In 1869, Dr. Gore proposed a thermo-magnetic generator of electricity (Proc.R.S. 1868–69, p. 261), in which an increasing or decreasing magnetic field was produced by heating and cooling an iron wire placed as a core to a coil of wire. Mr. Edison has recently endeavoured to make this principle practical, but M. Menges, of the Hague, has been more successful. The difficulties to overcome are waste of heat, energy, and consumption of time, in heating and cooling. The results obtained at present are, however, poor, though encouraging.

M. Tereschin, following Quincke's examples and directions, has found with water, methyl and ethylic alcohol, bisulphide of carbon, ether, oil of turpentine, and rape oil, a considerable transport of mass in capillary tubes in the direction of the positive current (*Beiblätter* No. 10, 1887); and Prof. Horace Lamb, in the *Phil. Mag.* for January, prints the admirable paper on the subject which was read before Section A of the British Association at Manchester last September, in which he criticizes the work of Wiedemann and Helmholtz, and explains the phenomenon on the assumption of Quincke, that there is a contact potential difference between the fluid and its solid boundaries, and his own conclusion that there is a sliding coefficient for a fluid in contact with a solid. This transport of mass, due to currents, and the electromotive forces produced by the passage of liquids through capillary tubes, and porous diaphragms are facts undeveloped and unapplied at present.

Considerable attention is being devoted to the heating and fusing of wires by currents. Short lengths of fine wire are used in nearly all electric light equipments as safety valves or cut outs; but the law determining the behaviour of these fuses was little known. Mr. Preece has written two papers for the Royal Society. Profs. Ayrton and Perry introduced the subject in a recent paper read at the Society of Electrical Engineers, and Mr. Cockburn has brought the whole subject before that Society, where it has been well threshed out. For fine wires, viz. those under ·010 in., the fusing current varies with the diameter; but for wires over ·010 in., is given by the equation—

$$C = ad^3/_2.$$

The constant *a* has been determined for all metals. The behaviour of tin, which is very commonly used, is peculiar. When it approaches the temperature of fusion, its surface oxidizes and coats the wire with a thin skin, which acquires a higher temperature and allows a greater current to flow before fusing. Mr. Cockburn breaks through this skin with a weight—a pellet of lead; while Mr. Preece prevents the skin forming by covering the wire with shell-lac, which acts as a flux and prevents oxidation.

Major King, U.S.A., has recently made a mammoth electro-magnet out of two Rodman guns, weighing about 60 tons. It was excited by a powerful dynamo, and the armature resisted a pull of nearly 10 tons. The field was felt and watches were stopped at very great distances.

Von Bernardo's system of welding by directing an arc itself along the crack, fissure, or edge of the metal to be welded is attracting great attention on the Continent. Prof. Rühlmann, of Chemnitz, has read a very interesting paper before the Electrotechnical Society of Berlin. A carbon rod is the positive and the metal to be fused the negative pole of the arc. The arc acts like a blow-pipe flame. It is eminently adapted to repair cracks and leaks in boilers, heaters, and condensers, to repair tools and generally to cover the ground of soldering and welding.

A novel mode of forming electrolytically deposited copper tubes is attracting considerable attention. The copper is slowly deposited in a thin coating on an iron mandril kept constantly rotating in the bath. As the copper forms it is pressed by an agate burnisher, which compresses the molecular structure into a hard and solid mass of great tensile strength. Such copper has reached a breaking strain of 40 tons on the square inch. The process is due to Mr. W. Elmore.

A curious experiment is mentioned by the *Electrician* (January 27). A disk of soft iron has a spindle put through it so that it can be spun like a top. When at rest or moving slowly the disk is attracted by the poles of a magnet; but when it turns with sufficient velocity it is repelled by the magnet. The reaction of the induced currents in the mass of the metal is greater than the magnetic attraction.

H. F. Weber has cast doubts on the dull red rays being the first luminous rays to appear. He says that the carbon filaments, platinum, gold, and iron give a "gray glow," which is evident at temperatures much below that of dull red, viz. 525° C. Gold gives this gray effect at 417°, iron at 377°, and platinum at 390°.

THE PROPOSED TEACHING UNIVERSITY FOR LONDON.

The following is the text of the petition which has been drawn up by the Association for Promoting a Teaching University for London:—

To the Queen's Most Excellent Majesty in Council.

The Humble Petition of the Association for Promoting a
Teaching University for London

Showeth—

1. That the Association for Promoting a Teaching University for London was formed in 1884, and has enrolled up to the present time about 250 members, each of whom was specially invited to join on the ground of eminence, or of experience in matters affecting University teaching in London, or of being

actively engaged in educational or administrative work in one of the institutions in which such teaching is given.

2. That your petitioners have been engaged for the last three years in examining the state and requirements of University education in London, and in conferring with the persons responsible for the teaching and administration of the institutions in which such education is carried on. They have thus been led to the conclusion that there exists in the metropolis and its suburban districts a general and growing demand for the development of University education. They are convinced that this demand cannot be met while higher education in London remains in its present unorganized state, and while the various institutions giving University instruction are deprived of the means of common discussion and concerted action. For the teaching given in these institutions their respective governing bodies are alone responsible, and each of these bodies for the most part acts in educational matters on the advice of its own teachers; but there is no common centre, such as a University would supply, where these governing bodies and their teachers could meet for purposes of conference, and wherein measures for the better organization of teaching could be discussed and settled. It is matter of experience to those who have taken part in the administration of such institutions that they suffer from the want of public recognition and support—a want due, not to defects in their work, but mainly to the anomaly of their position as institutions performing some of the functions without having the *status* of a University.

3. That the severance from the work of teaching of the work of examination for degrees, and the assignment of such examination to the existing University for London as its sole function, has had an injurious effect upon University education in London. The restraint exercised over efficient institutions through examinations held by a body which is neither responsible for their teaching nor in communication with their teachers acts as a fetter upon education, and gives undue consequence to examinations and their results. Examinations so arranged are less efficient than they might be made as a test of real merit, and tend to encourage dissipation of intellectual energy. In the Faculty of Medicine, although a systematic course of study in a recognized school is now required by the existing University of London, the want of due relations between the examining institution on the one hand and the teaching bodies and professional authorities on the other has led to unsatisfactory results.

4. That the evils above mentioned cannot be fully remedied but by the establishment in London of a Teaching University—that is to say, a University which (1) provides for the student in all the subjects included in its Faculties the best attainable teaching with the necessary aids and appliances; (2) requires a regular course of attendance on such teaching as a preliminary to graduation; and (3) secures to the teacher a direct and adequate representation in its councils, and a due share in its administration.

5. That such a University may be formed without trenching upon the province of the existing University of London, the functions of which are entirely different, and without superseding any institution now giving genuine University instruction in the metropolis. A Teaching University for London would incorporate or associate such institutions without injury to their individual life, as the Victoria University has incorporated Colleges in the North of England.

6. That the metropolis, regarded as the seat of a Teaching University, possesses for students in every Faculty, but especially in the Faculties of Laws and Medicine, advantages which cannot be equalled in any other place in the United Kingdom. Such a University, once established, would supply the motive power for various amendments in the University education of London, which are generally admitted to be needful, such as the greater concentration of the teaching of particular subjects in the earlier scientific stages of medical education; the foundation of additional chairs, attached either to particular institutions or to the University, for the further prosecution of special studies; the promotion of new Faculties; the encouragement of general education as a preliminary to the training for all professions; and, finally, such a presentation to the public of the needs of higher education in London as might secure from the corporate or private munificence of the metropolis the endowments necessary to enable it to keep pace with the growth of population and with the progress of learning.

7. That your petitioners, wishing to promote the foundation of a Teaching University in London, have held conferences with representative London teachers of University rank in the Faculties of Arts, Science, and Medicine, and have submitted to them the following statement of the objects to be aimed at in the foundation of such a University:—

(1) The organization of University teaching in and for London, in the form of a Teaching University, with Faculties of Arts, Science, Laws, and Medicine.

(2) The association of University examinations with University teaching, and the direction of both by the same authorities.

(3) The conferring of a substantive voice in the government of the University upon those engaged in the work of University teaching and examination.

(4) Existing institutions in London of University rank not to be abolished or ignored, but to be taken as the basis or component parts of the University, and either partially or completely incorporated, with the minimum of internal change.

(5) An alliance to be established between the University and the professional societies or corporations, the Council of Legal Education as representing the Inns of Court, the Royal College of Physicians of London, and the Royal College of Surgeons of England.

8. That these conferences have resulted in three reports, each embodying a substantial approval of the objects above stated and of the proposals of your petitioners for the purpose of effecting them.

9. That your petitioners have also held conferences with committees of the Senate and Convocation of the existing University of London, and that, simultaneously with the action taken by your petitioners, and, as they believe, in consequence thereof, the questions at issue have, it is understood, been under the consideration of the Senate and Convocation. Their deliberations have resulted in a report, which has been communicated to your petitioners, and recommends various changes in the constitution of the Senate as the governing body of the University, the establishment of Faculties and Boards of Studies, and the introduction on the governing body of representatives of such Faculties.

10. That such proposals differ from the proposals of your petitioners in the following, among other, respects:—

(1) In not requiring, as a preliminary to graduation in the Faculties of Arts and Science, a regular course of instruction in some recognized teaching institution. Such a course of instruction, however, continues to be required by the existing University as a preliminary to graduation in the Faculty of Medicine.

(2) In admitting Colleges not situated within the London district, the effect of this provision being that the suggested Faculties and Boards of Studies could meet but seldom, and thus would not afford to the teaching institutions of the metropolis adequate means of common discussion and concerted action.

(3) In the absence of any sufficient conditions for securing that the associated Colleges shall be doing effective University work.

(4) In not providing for the direct representation upon the governing body of the associated institutions, or of University teachers.

(5) In granting an unduly large representation to the graduates of the University.

11. That it appears to be difficult, if not impossible, for the University of London, consistently with its relations towards institutions situated elsewhere, and towards private students, to accept modifications which would enable it to fulfil the objects above mentioned.

12. That your petitioners have also held conferences with committees of the Councils of University College, London, and King's College, London, respectively, and have submitted to them the above statement of the objects of the Association. The subject having been subsequently brought by the committees before their respective Councils, these Councils adopted resolutions expressing their approval of the objects above stated, and have since determined to petition Your Majesty to the same general effect as is set forth in this petition.

13. That an alliance between the Teaching University above described and the chief professional societies and corporations of the metropolis, such as the Inns of Court, the Royal College of Physicians of London, and the Royal College of Surgeons of England, would be desirable as securing professional interests in

the arrangements for graduation, and in simplifying and rearranging examinations in the Faculties of Laws and Medicine. Your petitioners have accordingly opened communications with the above-named bodies regarding this subject. They understand, however, that the Royal College of Physicians and the Royal College of Surgeons are disposed to seek conjointly for independent powers of granting degrees in a Faculty of Medicine. Your petitioners deprecate any severance of the machinery for granting degrees in London from academic influences. Many serious defects of University education in London are due to such a severance.

14. That, with a view to avoid multiplication of bodies conferring a diploma or a licence to practise, it is expedient that the possession of the conjoint diploma of the two Royal Colleges above named should be a preliminary condition for obtaining a medical degree in the University, the conferring of such diploma remaining, as at present, the function of the said Royal Colleges.

15. That the objects above set forth would, in the opinion of your petitioners, be most readily accomplished by the issue of a charter to a body of persons suitably constituted to be the governing body of a new University in and for London; such body to consist of the following persons:—

(1) The Chancellor of the University; the first Chancellor to be appointed by Your Majesty, and named in the charter.

(2) Members to be named by Your Majesty in the charter. Vacancies to be filled by the Lord President.

(3) Members chosen by the governing bodies of University College, London; King's College, London; and such other Colleges as may be associated with the University.

(4) Members chosen by the governing bodies of the professional societies and corporations hereinbefore referred to, if associated with the University.

(5) Members chosen by the professors or teaching staff of associated institutions doing University work, and assembled in the Faculties, whether of Arts, Science, Laws, or Medicine, to which they respectively belong, such members to be in number not less than one-third of the whole governing body.

16. That power should be given to the governing body of the new University to accept the application for association with the University of any teaching institution in the metropolis, the conditions of such association to be—(*a*) that the institution is giving instruction of a University character; (*b*) that it has established a complete curriculum, and possesses a sufficient teaching staff in at least one of the recognized Faculties; (*c*) and that it has furnished proofs of its means and appliances for teaching being established on a satisfactory basis.

Your petitioners therefore humbly pray Your Majesty to be pleased to grant a charter to a body of persons appointed as is described in this petition, or to such other person as Your Majesty may be pleased to select, constituting a University in and for London upon the principles and for the purposes hereinbefore stated, and having power to grant its own degrees in the Faculties of Arts, Science, Laws, and Medicine, and that Your Majesty will be pleased to make such orders in the premises as to Your Majesty, in your Royal wisdom and justice, may seem meet.

And your petitioners will ever pray, &c.

Executive Committee of the Association for Promoting a Teaching University for London:—W. Grylls Adams, M.A., F.R.S., J. W. Cunningham, Sec. King's College, J. Curnow, M.D., F.R.C.P., Sir Dyce Duckworth, M.D., F.R.C.P., G. Carey Foster, B.A., F.R.S., M. Berkeley Hill, M.B., F.R.C.S., W. H. H. Hudson, M.A., LL.M., J. Marshall, LL.D., F.R.S. (Chairman), Norman Moore, M.D., F.R.C.P., H. Morley, LL.D., W. M. Ord, M.D., F.R.C.P., F. Pollock, M.A., R. S. Poole, LL.D., W. J. Russell, Ph.D., F.R.S., T. E. Scrutton, M.A., LL.B., Rev. Henry Wace, D.D., G. C. W. Warr, M.A., A. W. Williamson, LL.D., F.R.S., Gerald F. Yeo, M.D., F.R.C.S., Sir George Young, LL.D.; Secretary, F. C. Montague, M.A., 12 New Court, Carey Street, W.C.

THE TOTAL ECLIPSE OF THE MOON, JANUARY 28.

THE weather on the night of January 28 proved decidedly unfavourable for those astronomers in London and the neighbourhood who had prepared to observe the occultations of small stars by the eclipsed moon. The sky, which had been beautifully clear in the morning, but which had become partially clouded towards evening, had cleared again a little before the commencement of the eclipse, thus raising hopes which were destined to be disappointed, for the clouds returned, and, with the exception of two or three short breaks, the moon was enveloped in cloud more or less dense during the entire duration of the total phase. Very full preparations for the observation of the occultations had been made at the Royal Observatory, Greenwich, but only the observers at the four largest telescopes were able to see even one of the predicted phenomena. At the Cambridge Observatory a similar disheartening experience was recorded, and at Mr. Crossley's Observatory, Halifax, it was quite cloudy, but in the west and south of England, and in Ireland at Dublin and Belfast, the conditions for observing were very favourable. On the Continent, at Vienna no observations could be made, the moon being enveloped in thick haze; at Paris and Berlin the sky had been overcast, and there had been a fall of snow before the eclipse, but the latter half of the eclipse was well observed at the former station, and some good results were obtained at thelatter during a clear interval about a quarter of an hour after the commencement of totality. At Moscow the eclipse was seen in a very clear sky, and at Madrid it was partially clear.

The following table gives the number of observations obtained at those Observatories from which accounts have been received up to the present time:—

Observatory.	Aperture of telescope, inches	No. of Stars observed. Dis.	Reap.
Royal Observatory, Greenwich	24	3	7
,, ,, ,,	12¾	1	4
,, ,, ,,	6	3	1
,, ,, ,,	6½	0	3
Col. Tupman's—Harrow	18	3	2
Mr. Penrose's—Wimbledon	6	3	2
Mr. Brodie's—Fernhill, I. of W.	8½	9	5
Mr. Stothert's—Bath	6	11	13
Cambridge Observatory	12	0	2
Miss Petrie—Bradford	6	1	1
Mr. Backhouse's—Sunderland	—	1	0
Glasgow Observatory	9	6	7
Mr. Heath—Edinburgh	3¼	3	1
Dunsink Observatory	—	17	18
		No. of Stars observed.	
Stonyhurst Observatory	8	1	
,, ,,	5½	12	
,, ,,	4	4	

The 8-inch refractor at Stonyhurst was devoted to spectroscopic observations during the greater part of the eclipse. It had been in the programme to make similar observations at Greenwich had the night proved favourable, and also to take a series of photographs showing the progress of the eclipse. Three photographs were secured, but the clouds prevented all spectroscopic work. Dr. Copeland also at Dun Echt had intended to make spectroscopic observations, but was almost completely thwarted by snow-squalls.

SOCIETIES AND ACADEMIES.

LONDON.

Royal Society, January 19.—"On the Secondary Carpals, Metacarpals, and Digital Rays in the Wings of existing Carinate Birds." By W. K. Parker, F.R.S.

In a paper "On the Morphology of Birds," already sent in to the Royal Society, but not yet published, I have described certain additional parts in the wings of Gallinaceous birds.

One of these lies on the radial side of the first metacarpal; the other two are on the ulnar side of the second and third metacarpals.

These parts, which at first caused me considerable surprise, being wholly unexpected by me, are only part of what I have since found in other families.

During the past year I have worked out the development of the skeleton in the Duck tribe ("Anatidæ"), in the Auk tribe ("Alcidæ"), and in the Gull tribe ("Laridæ"), and to some degree in some other families. The subject appears to me to be of great interest, and I have, through various English and American friends, obtained many scores of embryos and young birds, &c., that I may be able to trace these parts in every main group of the class. Normally, both the existing Carinatæ and Ratitæ,